This listing of claims replaces all prior versions, and listings of claims in the instant application:

Listing of Claims:

1. (Cancelled) Please cancel Claim 1, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

2. (Cancelled) Please cancel Claim 2, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

3. (Cancelled) Please cancel Claim 3, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

4. (Cancelled) Please cancel Claim 4, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

5. (Cancelled) Please cancel Claim 5, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

6. (Cancelled) Please cancel Claim 6, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

7. (Cancelled) Please cancel Claim 7, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

8. (Cancelled) Please cancel Claim 8, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

9. (Cancelled) Please cancel Claim 9, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

10. (Cancelled) Please cancel Claim 10, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

11. (Cancelled) Please cancel Claim 11, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

12. (Cancelled) Please cancel Claim 12, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

13. (Cancelled) Please cancel Claim 13, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

14. (Cancelled) Please cancel Claim 14, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

15. (Cancelled) Please cancel Claim 15, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

16. (Cancelled) Please cancel Claim 16, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

17. (Cancelled) Please cancel Claim 17, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

18. (Cancelled) Please cancel Claim 18, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

19. (Cancelled) Please cancel Claim 19, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

20. (Cancelled) Please cancel Claim 20, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

21. (Cancelled) Please cancel Claim 21, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

22. (Cancelled) Please cancel Claim 22, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

23. (Cancelled) Please cancel Claim 23, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

24. (Cancelled) Please cancel Claim 24, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

25. (Cancelled) Please cancel Claim 25, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

26. (Cancelled) Please cancel Claim 26, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

27. (Cancelled) Please cancel Claim 27, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

28. (Cancelled) Please cancel Claim 28, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

29. (Cancelled) Please cancel Claim 29, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

30. (Cancelled) Please cancel Claim 30, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

31. (Cancelled) Please cancel Claim 31, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

32. (Cancelled) Please cancel Claim 32, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

33. (Cancelled) Please cancel Claim 33, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

34. (Cancelled) Please cancel Claim 34, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

35. (Cancelled) Please cancel Claim 35, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

36. (Cancelled) Please cancel Claim 36, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

37. (Cancelled) Please cancel Claim 37, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

38. (Cancelled) Please cancel Claim 38, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

39. (Cancelled) Please cancel Claim 39, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

40. (Cancelled) Please cancel Claim 40, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

41. (Cancelled) Please cancel Claim 41, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

42. (Cancelled) Please cancel Claim 42, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

43. (Cancelled) Please cancel Claim 43, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

44. (Cancelled) Please cancel Claim 44, without prejudice, as previously submitted in the preliminary amendment of March 8, 2004.

45. (Previously Presented) A method for measuring the lifetime of objects in a garbage-collected system, the objects organized in a graph structure, the method including:

maintaining a reference count for one or more of the objects, said reference count indicating the number of incoming pointers to each object;

recording a timestamp for an object when said reference count for said object changes;

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

reviewing in reverse chronological order said timestamps for each of said objects which are cyclic garbage, and for each timestamp found:

indicating that the object corresponding to said timestamp is dead; and

indicating that any object reachable from said object corresponding to said timestamp is dead.

46. (Previously Presented) The method of claim 45, further including executing a garbage collection, said garbage collection indicating one or more objects which are cyclic garbage.

47. (Previously Presented) The method of claim 45, wherein said timestamp is a counter which is incremented on a pointer store.

48. (Previously Presented) The method of claim 45, wherein the lifetime of an object is the period between the time it is created and the time it dies.

49. (Previously Presented) The method of claim 48, wherein the time an object dies can be traced to the timestamp of when it was indicated the object was dead.

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

50. (Previously Presented) The method of claim 45, wherein each time a change is made to the graph structure, a record is generated, one field in said record being said timestamp.

51. (Previously Presented) The method of claim 45, further including repeating said reviewing each time a garbage collection is executed.

52. (Previously Presented) The method of claim 46, wherein said executing includes detecting objects which are cyclic garbage by invoking a tracing collector.

53. (Previously Presented) The method of claim 52, wherein said tracing collector is a mark-sweep collector.

54. (Previously Presented) A method for measuring the lifetime of objects in a garbage-collected system, the objects organized in a graph structure, the method including:

recording a timestamp for an object when said reference count for said object is decremented;

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

executing a garbage collection, said garbage collection indicating one or more objects which are cyclic garbage;

reviewing in reverse chronological order said timestamps for each of said objects, and for each timestamp found:

if said object is cyclic garbage:

indicating that the object corresponding to said timestamp is dead; and

indicating that any object reachable from said object corresponding to said timestamp is dead.

55. (Previously Presented) The method of claim 54, wherein said timestamp is a counter which is incremented on every pointer deletion.

56. (Previously Presented) The method of claim 54, wherein the lifetime of an object is the period between the time it is created and the time it dies.

57. (Previously Presented) The method of claim 56, wherein the time an object dies can be traced to the timestamp of when it was indicated the object was dead.

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

58. (Previously Presented) The method of claim 54, wherein each time a change is made to the graph structure, a record is generated, one field in said record being said timestamp.

59. (Previously Presented) The method of claim 54, further including repeating said reviewing each time a garbage collection is executed.

60. (Previously Presented) The method of claim 54, wherein said executing includes detecting objects which are cyclic garbage by invoking a tracing collector.

61. (Previously Presented) The method of claim 60, wherein said tracing collector is a mark-sweep collector.

68. (Previously Presented) An apparatus for measuring the lifetime of objects in a garbage-collected system, the objects organized in a graph structure, the apparatus including:

means for maintaining a reference count for one or more of the objects, said reference count indicating the number of incoming pointers to each object;

means for recording a timestamp for an object when said reference count for said object changes;

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

means for reviewing in reverse chronological order said timestamps for each of said objects which are cyclic garbage, and for each timestamp found:

indicating that the object corresponding to said timestamp is dead; and

indicating that any object reachable from said object corresponding to said timestamp is dead.

69. (Previously Presented) The apparatus of claim 68, further including means for executing a garbage collection, said garbage collection indicating one or more objects which are cyclic garbage.

70. (Previously Presented) The apparatus of claim 68, wherein said timestamp is a counter which is incremented on a pointer store.

71. (Previously Presented) The apparatus of claim 68, wherein the lifetime of an object is the period between the time it is created and the time it dies.

72. (Previously Presented) The apparatus of claim 71, wherein the time an object dies can be traced to the timestamp of when it was indicated the object was dead.

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

73. (Previously Presented) The apparatus of claim 68, wherein each time a change is made to the graph structure, a record is generated, one field in said record being said timestamp.

74. (Previously Presented) The apparatus of claim 68, further including means for repeating said reviewing each time a garbage collection is executed.

75. (Previously Presented) The apparatus of claim 69, wherein said executing includes detecting objects which are cyclic garbage by invoking a tracing collector.

76. (Previously Presented) The apparatus of claim 75, wherein said tracing collector is a mark-sweep collector.

77. (Previously Presented) An apparatus for measuring the lifetime of objects in a garbage-collected system, the objects organized in a graph structure, the apparatus including:

means for recording a timestamp for an object when said reference count for said object is decremented;

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

means for executing a garbage collection, said garbage collection indicating one or more objects which are cyclic garbage;

means for reviewing in reverse chronological order said timestamps for each of said objects, and for each timestamp found:

if said object is cyclic garbage:

indicating that the object corresponding to said timestamp is dead; and

indicating that any object reachable from said object corresponding to said timestamp is dead.

78. (Previously Presented) The apparatus of claim 77, wherein said timestamp is a counter which is incremented on every pointer deletion.

79. (Previously Presented) The apparatus of claim 77, wherein the lifetime of an object is the period between the time it is created and the time it dies.

80. (Previously Presented) The apparatus of claim 79, wherein the time an object dies can be traced to the timestamp of when it was indicated the object was dead.

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

81. (Previously Presented) The apparatus of claim 77, wherein each time a change is made to the graph structure, a record is generated, one field in said record being said timestamp.

82. (Previously Presented) The apparatus of claim 77, further including means for repeating said reviewing each time a garbage collection is executed.

83. (Previously Presented) The apparatus of claim 77, wherein said means for executing includes means for detecting objects which are cyclic garbage by invoking a tracing collector.

84. (Previously Presented) The apparatus of claim 83, wherein said tracing collector is a mark-sweep collector.

85. (Previously Presented) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for measuring the lifetime of objects in a garbage-collected system, the objects organized in a graph structure, the method including:

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

maintaining a reference count for one or more of the objects, said reference count indicating the number of incoming pointers to each object;

recording a timestamp for an object when said reference count for said object changes;

reviewing in reverse chronological order said timestamps for each of said objects which are cyclic garbage, and for each timestamp found:

indicating that the object corresponding to said timestamp is dead; and

indicating that any object reachable from said object corresponding to said timestamp is dead.

86. (Previously Presented) A program storage device readable by a machine, tangibly embodying a program of instructions executable by the machine to perform a method for measuring the lifetime of objects in a garbage-collected system, the objects organized in a graph structure, the method including:

recording a timestamp for an object when said reference count for said object is decremented;

executing a garbage collection, said garbage collection indicating one or more objects which are cyclic garbage;

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888

reviewing in reverse chronological order said timestamps for each of said objects, and for each timestamp found:

if said object is cyclic garbage:

indicating that the object corresponding to said timestamp is dead; and

indicating that any object reachable from said object corresponding to said timestamp is dead.

GUNNISON, McKAY & HODGSON, L.L.P.
Garden West Office Plaza
1900 Garden Road, Suite 220
Monterey, CA 93940
(831) 655-0880
Fax (831) 655-0888